

Claim Amendments (Listing):

1. (Currently Amended) A movable sensor apparatus, comprising:

a movable housing;

at least one supporting extension wherein each said supporting extension is rotatably affixed to said housing, being fully rotatable about a first axis;

at least one sensor that for sensing an object buried beneath a surface of the earth, wherein each at least one sensor is rotatably affixed to one of said at least one supporting extension, being extension and is fully rotatable about a second axis substantially parallel to and offset from said first axis so as to scan an area of the surface of the earth;

a linear propulsion mechanism attached to said housing whereby said housing may be moved over the ground;

a mechanism to fully rotate each at least one supporting extension about the first axis and to fully rotate each at least one sensor about the second axis, so as to cause the at least one sensor to scan the area of the surface of the earth as said housing moves across said area;

a triggering unit electrically coupled to each of said at least one sensor and capable of separately activating each of said at least one sensor; and[[],]

a sampling unit electrically coupled to each of said at least one sensor and capable of receiving output from each of said at least one sensor.

2 (Currently amended) The movable sensor apparatus of Claim 1 wherein said sensor is a sensing device selected from the group consisting of a magnetometer an electromagnetic induction sensor, a radar sensor and a sonar sensor.

3-5 (Cancelled)

6. (Original) The movable sensor apparatus of Claim 1 wherein each said supporting extension rotates at a constant rate of rotation.

7. (Currently amended) The movable sensor apparatus of Claim 6 wherein each said sensor rotates at a constant rate of rotation that is equal in magnitude and opposite in direction to said constant rate of rotation of each said supporting extension to maintain orientation of the at least one sensor relative to a substantially linear direction of movement of the housing.

8. (Original) The movable sensor apparatus of Claim 1 further comprising a position indicator coupled to at least one said supporting extension and said linear propulsion mechanism.

9. (Original) The movable sensor apparatus of Claim 8 further comprising a data storage device for storing sensor data collected from each of said at least one sensor and position data collected from said position indicator.

10. (Currently Amended) A movable sensor apparatus, comprising:
a movable housing;
a first supporting extension rotatably affixed to said housing, being fully rotatable about a first axis;
a second supporting extension rotatably affixed to said housing, being fully rotatable about said first axis;

a first buried object sensor that is rotatably affixed to said first supporting extension, being fully rotatable about a second axis substantially parallel to and offset from said first axis;

a second buried object sensor that is rotatably affixed to said second supporting extension, being fully rotatable about a third axis substantially parallel to and offset from said first axis and said second axis;

a linear propulsion mechanism attached to said housing whereby said housing may be moved over the ground;

a mechanism to fully rotate each supporting extension about the first axis and to fully rotate the first and second buried object sensors about the second and third axes respectively, so as to cause the sensors to scan an area of the surface of the earth as said housing moves across said area;

a triggering unit electrically coupled to said first sensor and said second sensor and capable of separately activating said first sensor and said second sensor; and,

a sampling unit electrically coupled to said first sensor and said second sensor and capable of receiving output from said first sensor and said second sensor.

11. (Currently amended) The movable sensor apparatus of Claim 10 wherein each of said first sensor and second sensors is a sensing device selected from the group consisting of a radar sensor and said second sensor is sensor, an electromagnetic induction sensor, a magnetometer and a sonar sensor.

12. (Currently amended) The movable sensor apparatus of Claim [[10]] 11, wherein said first sensor is a radar sensor and different selected one of said sensing devices than is said second sensor is an optical camera.

13-20 (Cancelled)

21. (Previously presented) The movable sensor apparatus of Claim 10, wherein the first, second and third axes are substantially perpendicular to the ground.

22. (Previously presented) The movable sensor apparatus of Claim 1, wherein the first and second axes are substantially perpendicular to the ground.

23. (Currently amended) A movable sensor apparatus, comprising:
a movable housing;
a propulsion mechanism attached to said housing whereby said housing may be moved in a direction over the ground;
a support which rotates fully about a first axis;
a sensor for sensing a characteristic of the ground ground, mounted on the support so as to fully rotate about a second axis substantially parallel to the first axis and so as to observe the ground as the housing is moved over the ground; and
a sensor drive mechanism for driving rotation of the support at a first rate and for driving rotation of the sensor at a second rate during rotation of the support and in a direction opposite to rotation of the support, wherein a relationship of the second rate of rotation to the first rate of rotation is such that orientation of the sensor relative to the direction of movement over the ground remains substantially constant during rotation of the support and the sensor.

24. (Previously presented) The movable sensor apparatus of claim 23, wherein the sensor is a sensing device selected from the group consisting of a magnetometer, an optical camera, an electromagnetic induction sensor, a radar sensor and a sonar sensor.

25. (Previously presented) The movable sensor apparatus of claim 23 wherein the second rate of rotation is constant and equal in magnitude and opposite in direction to the first rate of rotation.

26. (Previously presented) The movable sensor apparatus of claim 23, further comprising:

another sensor for sensing a characteristic of the ground mounted on the support so as to fully rotate about a third axis substantially parallel to and offset from the first axis; wherein:

the sensor drive mechanism is also for driving rotation of the other sensor at a third rate during rotation of the support and in a direction opposite to rotation of the support, and

a relationship of the third rate of rotation to the first rate of rotation is such that orientation of the other sensor relative to the direction of movement remains substantially constant during rotation.

27. (Previously presented) The movable sensor apparatus of claim 26, wherein a first one of the sensors is a first sensing device selected from the group consisting of a magnetometer, an optical camera, an electromagnetic induction sensor, a radar sensor and a sonar sensor.

28. (Previously presented) The movable sensor apparatus of claim 27, wherein a second one of the sensors is a second sensing device selected from the group consisting of a

magnetometer, an optical camera, an electromagnetic induction sensor, a radar sensor and a sonar sensor.

29. (Previously presented) The movable sensor apparatus of claim 28, wherein the first and second sensing devices are different from each other.

30. (Previously presented) The movable sensor apparatus of claim 26, wherein each of the second and third rates of rotation is constant and equal in magnitude and opposite in direction to the first rate of rotation.